

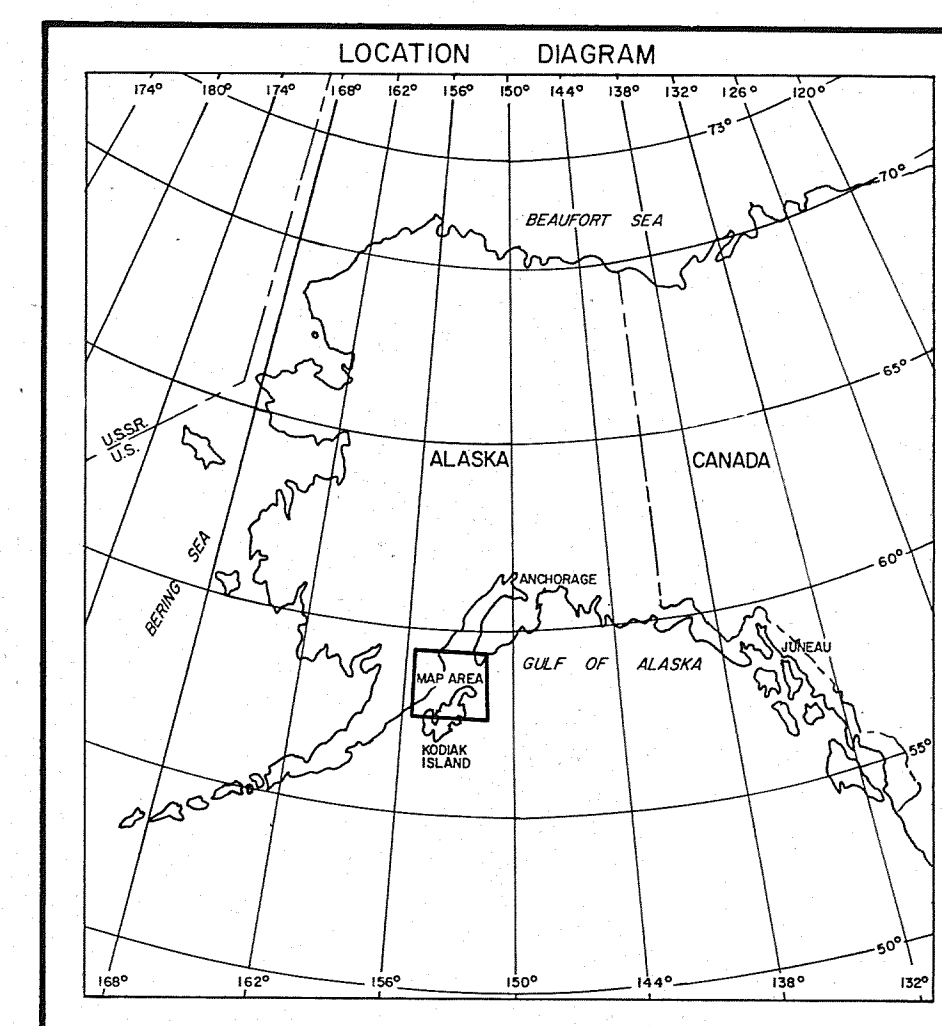
ISOPACH MAP OF UPPER HOLOCENE MARINE SEDIMENTS

This map shows the distribution and thickness of probable upper Holocene marine sediments in Shelikof Strait. This information was interpreted primarily from side-scan sonar, fathometer, 3.5-kHz piezoelectric profiler, and an electromechanical profiler or, alternatively, low-energy sparker data. An average velocity of 1600 meters per second was used to determine the sediment thickness from the seismic reflection data.

A late Holocene age for this unit is inferred from geomorphic evidence and from sediment characteristics interpreted from the seismic data. The probable upper Holocene marine sediments are more transparent to acoustical energy, in the frequencies between 1 kHz and 7 kHz, than the underlying sediments. Reflectors within the probable upper Holocene may be traced over areas as large as hundreds of square kilometers, but none are continuous throughout Shelikof Strait. The discontinuity of reflectors and the presence of pinchouts within the section indicate that the unit is somewhat variable laterally and vertically. The presence of localized brighter reflectors indicates the possible presence of gas, organic-rich sediments, layers of softer sediments or reflective sand or gravel horizons within the section.

The probable upper Holocene sediments in Shelikof Strait are ponded in places and not deposited or scoured in other places. Along the sides of and locally within the strait, Tertiary(?) and older rocks crop out. The outcrops of older rocks are positive relief features and probably are not the result of uncovering. The probable upper Holocene sediments generally thicken to the southwest and reach a maximum thickness of 40 meters in small basins, but are in excess of 35 meters thick over a sizable area at the southwestern end of the strait.

This unit was chosen for mapping because it is seismically distinct and because it probably has geotechnical properties that differ from those of the underlying sediments.



OPEN-FILE REPORT SERIES ON SHELIKOF STRAIT, ALASKA, 1980

This report is one of six (5 maps and 7 cross sections) on the surface and near-surface geologic environment of Shelikof Strait, Alaska. This series was developed in preparation for Oil and Gas Lease Sale 60 of the Outer Continental Shelf of Lower Cook Inlet, scheduled for September 1981. The publications in this series are:

Bathymetric map of the Outer Continental Shelf of Shelikof Strait, Alaska, by John Whitney and K. D. Holden: U.S. Geological Survey Open-File Report 80-2031, scale 1:250,000, 1 sheet.

Isopach map of upper Holocene marine sediments, Outer Continental Shelf, Shelikof Strait, Alaska, by K. D. Holden: U.S. Geological Survey Open-File Report 80-2032, scale 1:250,000, 1 sheet.

Isopach map of Holocene marine sediments, Outer Continental Shelf, Shelikof Strait, Alaska, by Peter J. Hoose, K. D. Holden, and Lynn Lybeck: U.S. Geological Survey Open-File Report 80-2033, scale 1:250,000, 1 sheet.

Isopach map of Quaternary glacial-marine sediments, Outer Continental Shelf, Alaska, by John Whitney, K. D. Holden, and Lynn Lybeck: U.S. Geological Survey Open-File Report 80-2034, scale 1:250,000, 1 sheet.

Map showing selected geologic features on the Outer Continental Shelf, Shelikof Strait, Alaska, by Peter J. Hoose and John Whitney: U.S. Geological Survey Open-File Report 80-2035, scale 1:250,000, 1 sheet.

Geologic cross sections of the Outer Continental Shelf, Shelikof Strait, Alaska, by John Whitney, Peter J. Hoose, Laura Mc Smith, and Lynn Lybeck: U.S. Geological Survey Open-File Report 80-2036, 1 sheet.

The information presented in these six reports was interpreted from 2557 kilometers of multi-sensored high-resolution geophysical data collected in 1979 by Weldon, Inc., for the U.S. Geological Survey. The acoustic systems used included a 16-kilojoule (kJ) sparker with both sixfold common-depth-point (CDP) processing and analog format, a low-energy (1-3 kJ) sparker, an electromechanical boomer, a 3.5-kHz piezoelectric profiler, a fathometer, and side-scan sonar. The tracklines along which data were collected are shown on each map. This survey was performed under an exclusive contract with the U.S. Geological Survey; the data are available to the public as Sale 60, Data Set AK-18248 from the National Geophysical and Solar-Terrestrial Data Center (address: NOAA/EDS/NGSDC, Code D-621, Boulder, CO 80302).

The 4.8 km X 4.8 km grid superimposed on each map represents the tract boundaries from the Bureau of Land Management Protraction Diagrams.

SOURCE OF SHORELINE FROM BLM
PROTRACTION DIAGRAMS NO 4-6
NO5-1, NO5-3, NO5-4 AND NO5-5.
PUBLISHED IN 1975 AND 1976.

MAP PROJECTION UTM CLARKE
1866 SPHEROID, ZONE 5.

This map is not intended for navigational purposes.
It has not been edited for conformity with Geological
Survey editorial standards or stratigraphic nomenclature.

ISOPACH MAP OF UPPER HOLOCENE MARINE SEDIMENTS, OUTER CONTINENTAL SHELF, SHELIKOF STRAIT ALASKA
K.D. HOLDEN
1980